

POWERBOARD 17kW

(HW02/HW02S)



INSTALLATION MANUAL



Important: This manual contains important safety instructions. Keep this manual handy for reference.

- Before using this product please read all the instructions carefully.
- Keep these instructions for future reference.
- All specifications are subject to change without prior notice.

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1. SAFETY

General guidelines

The following general safety guidelines are provided to help to ensure your own personal safety and protect your device from potential damage.

- Do not attempt to service the device. For some devices with a user-replaceable battery, please read and follow the instructions provided by the installation manual.
- Keep your device away from radiators and heat sources.
- Keep your device away from extremely hot or cold temperatures to ensure that it is used within the specified operating range.
- Do not spill food or liquids on your device.
- Before you clean your device, disconnect it from the electrical outlet. Clean your device with a dry soft cloth. Do not use liquids.
- If your device does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact an authorized dealer or the Open Grow support center.
- To help avoid the potential hazard of electric shock, do not connect or disconnect any cables, or perform maintenance or reconfiguration of your device during an electrical storm.
- Check the voltage rating before you connect the device to an electrical outlet to ensure that the required voltage and frequency match the available power source.
- Also, ensure that your GroLab devices and attached devices are electrically rated to operate with the AC power available in your location.
- Do not plug the power cables into an electrical outlet if the power cables are damaged.
- To prevent electric shock, plug the power cables into properly grounded electrical outlets.
- To avoid the risk of shock, do not expose this equipment to rain, moisture, or liquid spillage.

- If you use an extension power cable, ensure that the total ampere rating of the devices plugged into the extension power cable does not exceed the ampere rating of the extension cable.
- Never remove the PowerBoard enclosure before ensuring that no power is provided to the PowerBoard. Also, ensure that all power cables and control cables on the source are unplugged.
- Before attempting to use the PowerBoard ensure that the total loading of your equipment does not exceed the maximum rating of the PowerBoard.
- PowerBoard must be installed in accordance with local and international electrical safety regulations.
- The unit must be protected from environmental extremes during storage as well as after installation. Ingress of dust and moisture must be prevented. Heating of the room may be necessary to prevent any incidence of humidity during storage or before commissioning.



The PowerBoard internally contains lethal voltages. Only authorized personnel should work on it.

The dangers from electricity

Harm can be caused to any person when they are exposed to 'live parts' that are either touched directly or indirectly by means of some conducting object or material.

Electrical shocks from faulty equipment can cause severe and permanent injury and may also lead to indirect injuries due to falls from ladders, scaffolds, or other work platforms. Faulty electrical appliances can also lead to fires. As well as causing injuries and loss of life, fires cause damage to plant, equipment, and property.

Most electrical accidents occur because: **individuals are working on or near equipment which is thought to be dead but which is, in fact, live; individuals are working on or near equipment which is known to be live, but where those involved are without adequate training or appropriate equipment, or they have not taken adequate precautions; misuse equipment or use electrical equipment which they know to be faulty.**

Reducing the risk of electric shock

To reduce the risk of electric shock:

- Install the PowerBoard in a temperature and humidity controlled indoor area free of conductive contaminants. Ambient temperature must not exceed 55°C
- Remove watches, rings, and other metal objects.
- Use tools with insulated handles.
- Wear personal protective equipment (PPE).

First Aid

Before commencing any work:

- Find out the location of a suitably stocked first-aid box
- Find out the arrangements that exist on-site for first-aid, and who is responsible for taking charge of these.

2. SPECIFICATIONS

<i>Hardware Version</i>	HW02/HW02S
<i>Ambient Operating Temperature</i>	0 to 55°C
<i>Relative Humidity</i>	<95% non-condensing
<i>Expected Service Life</i>	>5 years
<i>Operating Voltage</i>	230 V _{AC}
<i>Control Voltage</i>	230 V _{AC}
<i>Absolute Maximum Power</i>	17kW - AC-1 (5.66kW per phase) 6kW - AC-3 (2kW per phase)
<i>Recommended Max. Power</i>	14.4kW - AC-1 (4.8kW per phase) 4.2kW - AC-3 (1.4kW per phase)
<i>Differential Residual Current Protection</i>	300mA (per input phase)
<i>Lines</i>	6 (4 sockets per line)
<i>Absolute Maximum Power per line</i>	3680W
<i>Recommended Max. Power per line</i>	2400W
<i>Maximum Number of Commutations</i>	0,6Mcycles 25A AC-1 a U _e ≤ 440V 2Mcycles 9A AC-3 a U _e ≤ 440V
<i>Compatibility</i>	GroLab PowerBot 230 V _{AC} timer
<i>Warranty</i>	2-years limited hardware warranty

3. DESCRIPTION

The GroLab PowerBoard is an electrical power board that handles a total of 17kW and offers six lines of control.

This electrical board supports up to **24x600W** or **12x1000W** (e.g. ideal to power agricultural lamps with power factor higher than 0.95).

Controlled with 230VAC, you can use it with a GroLab PowerBot or with another 230VAC controller (e.g. common 230VAC timer).

Possible configurations:

- **12x1000W: 12 lamps of 1000W, 2 lamps per line.**
- **24x600W: 24 lamps of 600W, 4 lamps per line.**

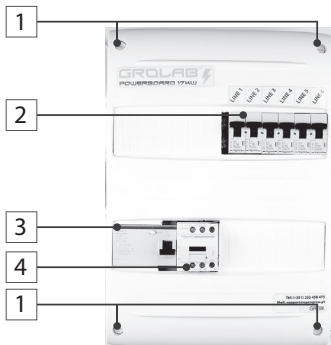
What is in the box

- GroLab PowerBoard 17kW.
- Installation manual.

Tools needed

- Standard electrician's toolkit.
- Standard electricians spanner set.

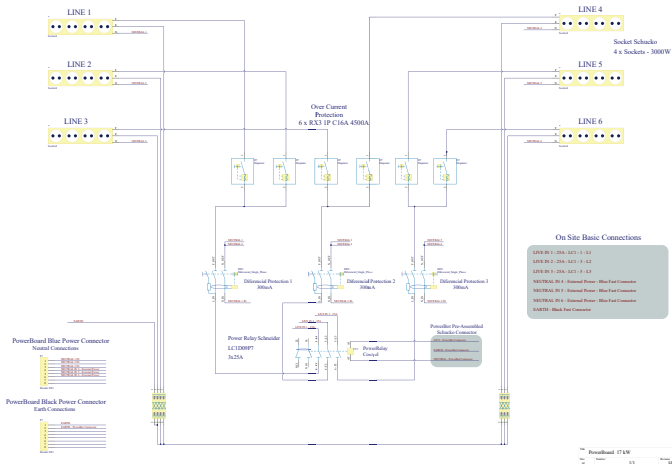
4. COMPONENTS



- 1 Fast screw locks
- 2 16A circuit breakers
- 3 300mA differential circuit breaker(s)*
- 4 Power relay
- 5 Power lines (4 x schuko socket)
- 6 230VAC external power cable
- 7 Support base (used for transportation only)

***The PowerBoard model HW02 has 3 differential circuit breakers. The PowerBoard model HW02S has 1 differential circuit breaker.**

5. SCHEMATICS



6. INSTALLATION

Before you start

Installation must only be carried out by a competent person who has sufficient electrical training and is familiar with safe practices when working on or near electrical systems.



WARNING: Safe handling. Take appropriate safe handling measures when lifting heavy items.



WARNING: The appliance must be earthed.



AC input disconnect (Isolator switch). FOR PERMANENTLY CONNECTED EQUIPMENT: A readily accessible disconnect device shall be incorporated external to this equipment (all-poles separation of at least 3mm).

Positioning the unit

The PowerBoard must be installed in a dry shaded and dust-free location with 300mm spacing all-round the unit to allow adequate ventilation.

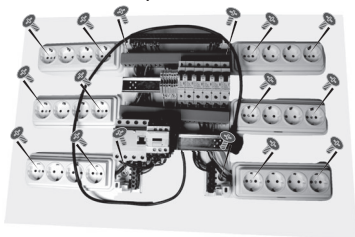
Prepare for wall-mounting

To facilitate the transportation of the equipment, as well as to better exemplify the final installation, usually, the PowerBoard is provided mounted on a support base.

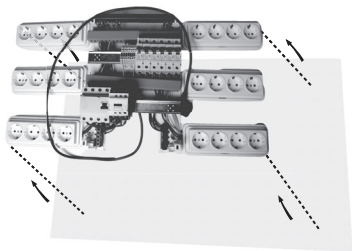
Before proceeding with the installation, the PowerBoard support base should be removed. First, you need to take the cover of the board out, rotate the screw locks as shown in the below picture.



After removing the cover of the board, you should now remove the screws that hold the board and the sockets to the support base, as shown in the below picture.



After removing the screws, remove the Power-Board from the support base as shown in the below picture.



There are 2 additional screws inside each schuko socket, that also need to be removed.

Wall-mounting

After removing the PowerBoard support base, you can install the PowerBoard in the desired location. Make sure that the wire insulation is not damaged when installing PowerBoard on the wall.

It is advised to maintain the pre-assembled disposition of the PowerBoard when installing it.



Make sure the PowerBoard is installed in the wall inside a cabinet or other type of enclosure, in accordance with local and international electrical safety regulations.

NOTE: It may be required to use different screws when installing the PowerBoard into the desired wall.

Base connections



Ensure all cabling is isolated from any existing mains supply and loads. Use appropriate mechanical lockouts to safely isolate the PowerBoard.

GroLab PowerBoard comes with a 230VAC male plug that is used to control the power relay, which is inside the PowerBoard. After taking out PowerBoard cover, you should find a set of 5 wires zip-tied with a sticker. **These wires are the connections you need to replace to provide power to the PowerBoard.**



These wires need to be completely removed and properly replaced by your 3 LIVE connections, 3 NEUTRAL connections and an EARTH connection, all these cables should be at least H07V-2,5mm².

1-> The 3 LIVE connections are connected directly to the power relay (**1L1 – 3L2 – 5L3**). Ensure it never exceeds 25A per LIVE connection.



2-> The 3 NEUTRAL connections are connected to the fast **blue** connector on the bottom right of the uncovered PowerBoard.



3-> The EARTH connection is connected to the fast **black** connector on the bottom left of the uncovered PowerBoard.



4-> Now, you should place the cover of the board back in. To do this, place the cover on the board and rotate the screw locks as shown in the below picture.



5-> The PowerBoard trigger is made through the external power cable. In this way, you should connect the power cable to one of the GroLab PowerBot outlets or to another 230VAC controller (e.g. common 230VAC timer).



Connect to the GroLab PowerBot

OR



Connect to a common 230VAC timer

7. TROUBLESHOOT

Symptom	Possible Cause	Possible Solution
The unit does not appear to be functioning.	1) No power is available on the input.	Ensure that you are using the correct voltage 230V _{AC} .
The unit appears to be functioning, but the output voltage is persistently low.	1) The unit is rated at 230V _{AC} and the incoming supply is 110V _{AC} .	Ensure the power relay is working properly and not damaged due to the incorrect incoming supply. Then, ensure that you are using the correct voltage 230V _{AC} .
The unit seems to have power but the power relay does not actuate.	1) The cable used to control the power relay might be loose or damaged.	Replace the control cable.
The circuit breaker opens when you plug a device on.	1) The plugged device requires more power beyond the PowerBoard is capable to provide.	Ensure the plugged device does not exceed the PowerBoard power constraints. Ensure there is no short circuit between the LIVE and the NEUTRAL, or the LIVE and the EARTH.
The differential circuit breaker drops when you plug a device on.	1) Possible EARTH leakage on the plugged device.	Check for possible faulty EARTH connections.

If the information in the table, presented on the previous page, does not solve the problem, please contact Open Grow technical support or return the unit to an Open Grow service center.

- Ensure that you have followed the operating instructions carefully.
- There are no user serviceable parts internally.
- Disassembling the unit, opening the lid, or tampering with the unit is unsafe for unqualified users and will render the warranty invalid.



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8. MAINTENANCE

As the unit is essentially maintenance-free, maintenance is limited to **ensuring periodically that it is free from dust or other residues.**

No calibration is required.

The service life of the PowerBoard should be in excess of five years if operated within specification.

It is recommended to **perform periodic inspections (at least once per year) to ensure that the entire electrical installation is in accordance with local and international electrical safety regulations.** The inspection should be **carried out by a certified electrician.**

9. WARRANTY

General terms

The warranty set forth below is given by Open Grow, Lda. (from now on, will be referred to as OPEN GROW). This warranty is only effective upon presentation of the proof of purchase.

EXCEPT AS EXPRESSLY SET FORTH IN THIS WARRANTY, OPEN GROW MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. OPEN GROW EXPRESSLY DISCLAIMS ALL WARRANTIES NOT STATED IN THIS WARRANTY. ANY IMPLIED WARRANTIES THAT MAY BE IMPOSED BY LAW ARE LIMITED IN DURATION TO THE WARRANTY PERIOD.

TO THE EXTENT ALLOWED BY LOCAL LAW, THE REMEDIES IN THIS WARRANTY ARE YOUR SOLE AND EXCLUSIVE REMEDIES AGAINST OPEN GROW. THEY DO NOT, HOWEVER, AFFECT OR RESTRICT THE RIGHTS YOU HAVE AGAINST THE BUSINESS YOU BOUGHT A OPEN GROW PRODUCT FROM. IN NO EVENT SHALL OPEN GROW BE LIABLE FOR LOSS OF DATA OR FOR INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL (INCLUDING LOST PROFIT OR DATA), OR OTHER DAMAGE, WHETHER BASED IN CONTRACT, TORT, OR OTHERWISE. HOWEVER, NOTHING IN THIS AGREEMENT LIMITS OPEN GROW'S LIABILITY TO YOU (I) IN THE EVENT OF DEATH OR PERSONAL INJURY TO THE EXTENT RESULTING FROM OPEN GROW'S NEGLIGENCE, OR (II) TO THE EXTENT RESULTING FROM ANY FRAUDULENT MISREPRESENTATION ON THE PART OF OPEN GROW, OR (III) TO THE EXTENT ARISING UNDER RELATED CONSUMER PROTECTION REGULATIONS. SOME COUNTRIES DO NOT ALLOW: (1) A DISCLAIMER OF IMPLIED WARRANTIES; (2) A LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION; OR (3) LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS. IN SUCH COUNTRIES, SOME EXCLUSIONS OR LIMITATIONS OF THIS LIMITED WARRANTY MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS THAT MAY VARY FROM COUNTRY TO COUNTRY. YOU ARE ADVISED TO CONSULT APPLICABLE COUNTRY LAWS FOR A FULL DETERMINATION OF YOUR RIGHTS.

This warranty applies to any OPEN GROW branded hardware product sold by OPEN GROW, its subsidiaries, affiliates, authorized resellers, or distributors (from now on, will be referred as PARTNERS), with this warranty.

Limitation of warranty

OPEN GROW warrants that the product under normal use is free from material defects in materials and workmanship during the warranty period if the product is used and serviced in accordance with the user manual and other documentation provided to the purchaser at the time of purchase (or as amended from time to time). OPEN GROW does not warrant that the product will operate uninterrupted or error-free or that all deficiencies, errors, defects or non-conformities will be corrected.

This warranty shall not apply to, and OPEN GROW shall not be responsible for, problems or damages resulting from: (a) unauthorised alterations or attachments; (b) negligence, abuse or misuse, including failure to operate the product in accordance with specifications, instruction, or interface requirements; (c) improper handling, use or storage; (d) failure of goods or services not obtained from OPEN GROW or not subject to a then-effective OPEN GROW warranty or maintenance agreement; or (e) fire, water, acts of God or other catastrophic events. This warranty shall also not apply if any OPEN GROW serial number on the product has been removed or defaced in any way.

Product warranty period

The product warranty period starts on the date of purchase from OPEN GROW or PARTNERS. Your dated sales or delivery receipt, showing the date of purchase of the product, is your proof of the purchase date.

You may be required to provide proof of purchase as a condition of receiving warranty service. You are entitled to warranty service according to the terms and conditions of this document if a repair to your OPEN GROW product is required within the product warranty period.

This product warranty extends only to the original end-user purchaser of this OPEN GROW product and is not transferable to anyone who obtains ownership of the product from the original end-user purchaser.

All OPEN GROW products have a 2-year guarantee except for consumables (calibration solutions, sensors and/or actuators of any type) and under normal use.

Performance of the warranty

If any defect occurs, OPEN GROW's sole obligation shall be to repair or replace the product free of charge provided it is returned to OPEN GROW after-sales department during the warranty period. Such repair or replacement will only be rendered by OPEN GROW at an authorized OPEN GROW repair station. All components or products that are replaced under this warranty become the property of OPEN GROW. The replacement takes on the REMAINING warranty period of the product. The replacement need not be new or of an identical make, model or part; OPEN GROW may in its discretion make the replacement with any reconditioned equivalents.

Warrantor

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Portugal

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Do not ship directly to OPEN GROW without first consulting with us to verify the procedure that should be followed.

Contact our technical services at support@opengrow.pt.

DISCLAIMER:

Application of the guarantee is excluded should the breakdown of the defective part or parts be a result of the product's inadequate and/or negligent use. Understood as inadequate and/or negligent use is any use other than the one for which the product is meant and/or that is recommended in the instructions manual, not executing the maintenance operations recommended in the instructions manual, carrying out operations that are different from those mentioned and that compromise the quality of the product, modifications that are not performed by authorized repairers and/or with non-original or non-approved parts.

10. COMPLIANCE



This symbol on the product or packaging means that according to local laws and regulations this product should not be disposed of in the household waste but sent for recycling. Please take it to a collection point designated by your local authorities once it has reached the end of its life, some will accept products for free. By recycling the product and its packaging in this manner you help to conserve the environment and protect human health.



This symbol on the product or packaging means that this product is compliant with RoHS Regulations of the European Parliament and Council Directive on the Restrictions of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (2011/65/EU).



This symbol on the product or packaging means that this product is in compliance with the following directives and regulations:

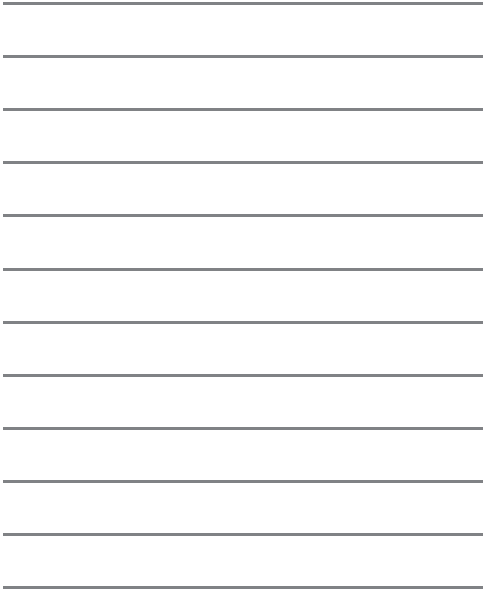
- (2011/65/EU) RoHS Directive.
- (2014/35/EU) Low Voltage Directive.
- (2014/30/EU) EMC.



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